

REVISED SPECIFICATION

Please replace Paragraph 65 with the Paragraph below:

Figure 1: A schematic representation of the coker process is shown in the drawing.

Figure 2: A drawing of the horizontal reactor vessel showing the internals.

Please replace Paragraph 73 with the Paragraph below:

In addition, the agitation system design is important in the efficient coking of highly viscous petroleum products. The agitation system is selected to produce an intensive mixing / kneading effect and be self-cleaning. A suitable agitation system may include continuously operating single shaft agitator or multi-parallel agitators, intermeshing as they rotate inside horizontal figure of eight housing. The multi-parallel agitators may contain at least two parallel shafts. The horizontal reactor vessel 11 is shown in Figure 2. A single agitator shaft 41 is displayed. The agitator shaft is equipped with a radial extension 42 so that it totally cleans each disc 43 and bar 44, for efficient self-cleaning and continuously scraping the viscous residuum and coke from the reactor surfaces.

Art Unit: 1754

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pietzka et al.

The reference teaches, especially in columns 2, 4 and 6, heating petroleum residue, devolatilizing, and coking. The temperature and pressure overlaps the claimed ranges. The reference does not teach the time of treatment, this is deemed an obvious expedient to achieve the desired degree of carbonization/coking; In re Boesch 205 USPQ 215.

Figure 2 depicts removing material from the bottom. Concerning claim 3, the back blades clean after the front blades push. In any event, having a system to remove the product is an obvious expedient for complete product recovery. Claim 4 does not require anything.

It is noted that claim 1a should actually require heating; delete 'providing ... for'. Claim 1g is met in that the product must cool at some point, such as during packaging prior to shipment. Claim 5 is obvious as an inexpensive way to perform cooling; note the coke is exposed to air in fig. 2.

Claim 6 is an obvious expedient to permit easy pumping of the product for processing.

It is noted that no IDS has yet been filed. At the least, references concerning the known techniques discussed in the specification should be provided.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (571) 272-1351.


Stuart Hendrickson
examiner Art Unit 1754